



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/562,839

12/29/2005

Katsuhiko Nishiwaki

13596/1

5850

23838 7590 12/21/2007  
KENYON & KENYON LLP  
1500 K STREET N.W.  
SUITE 700  
WASHINGTON, DC 20005

EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

12/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,839	<b>Applicant(s)</b> NISHIWAKI, KATSUHIKO	
	<b>Examiner</b> Howard Weiss	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1205</u> .  | 6) <input type="checkbox"/> Other: _____                          |

Attorney's Docket Number: 13596/1

Filing Date: 12/29/2005

Continuing Data: 371 of PCT/JP04/08516 (6/10/2004)

Claimed Foreign Priority Date: 7/11/2003 (JPX)

Applicant(s): Nishiwaki

Examiner: Howard Weiss

### ***Drawings***

1. Figures 18 to 23 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 7 and 11 recite the limitation "contacting portion" in Line 12 of each claim. There is insufficient antecedent basis for this limitation in the claims.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art and Yilmaz et al. (U.S. Patent No. 5,304,831).

Admitted Prior Art Figures 18 to 11 show most aspects of the instant invention including:

- a plurality of active devices arranged on a substrate **910** facing its principle plane
- contact electrodes **909** provided outside the substrate and conducting with the substrate via a p-type contacting portion **900**
- p-type body regions **903**, n-type drift regions **902** and p-type regions **901** arranged one on top of each other in this order
- gate electrodes **906** insulated **907** from said substrate

The Admitted Prior Art does not show a corner of an end portion of the contacting portion of the active device formed with a curve line or obtuse angle and the impurity concentration lower at the corner portion than in the other portion of said contacting portion. Yilmaz et al. teach (e.g. Figures 5 and 6) to have corners **148a-d** of an end portion of the contacting portion of the active device formed with a curve line or obtuse angle and the impurity concentration lower at the corner portion **160** than in the other portion **158** of said contacting portion to avoid excessive shorting of the channel and improve the breakdown voltage (Column 4 Lines 12 to 40). It would have been obvious to a person of ordinary skill in the art at the time of invention to have corners of an end portion of the contacting portion of the active device formed with a curve line or obtuse angle and the impurity concentration lower at the corner portion than in the other portion of said contacting portion as taught by Yilmaz et al. in the device of the Admitted Prior Art to avoid excessive shorting of the channel and improve the breakdown voltage.

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior and Yilmaz et al., as applied to Claim 7 above, and further in view of Kunori et al. (U.S. Patent No. 6,459,128).

The Admitted Prior and Yilmaz et al. show most aspects of the instant invention (Paragraph 5) except for the contacting portion being broader at the end portions than in the central portion. Kunori et al. teach (e.g. Figures 31 and 32) to have a contacting portion being broader at the end portions **81** than in the central portion **82** to provide a device with high withstand voltage, a reduce capacitance and a low conduction resistance (Column 2 Lines 48 to 50). It would have been obvious to a person of ordinary skill in the art at the time of invention to have a contacting portion being broader at the end portions than in the central portion as taught by Kunori et al. in the device of the Admitted Prior and Yilmaz et al. to provide a device with high withstand voltage, a reduce capacitance and a low conduction resistance.

### ***Conclusion***

7. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

10. The following list is the Examiner's field of search for the present Office Action:

<u>Field of Search</u>	<u>Date</u>
<b>U.S. Class / Subclass(es):</b> 257/341	12/18/2007
<b>Other Documentation:</b> PLUS Analysis Report	12/13/2007
<b>Electronic Database(s):</b> EAST	12/18/2007

HW/hw  
20 December 2007

/Howard Weiss/  
Primary Patent Examiner  
Art Unit 2814